REMARKS

Reconsideration and further examination are respectfully requested.

Drawings

The drawings were objected to for various informalities. Applicant has amended the drawings to correct the informalities and provide herewith a set of replacement figures in which the following changes have been made: In Figure 1, Applicant has added the abbreviation "TOS" and reference numeral 12m to the Type of Service field; In Figure 3, Applicants have added the packet A3 to the Figure, illustrating it as delayed at the source in conformance with the description in the specification at page 5; In Figure 5, element 55 has been removed; In Figure 5, element number 53 has been added to the incoming packet signal line.

With regard to Figure 4, the Applicant has amended the specification to correct a reference to Figure 4 which actually referred to Figure 5.

Accordingly, it is requested that the rejection be withdrawn and that the amended figures be accepted by the Examiner. The Examiner is thanked for the careful review of the specification.

Objections to the Claims

Claim 1 was objected to for failing to end in a period. Applicant has amended claim 1 to overcome this rejection and it is requested that the rejection be withdrawn.

Rejections under 35 U.S.C. §112, second paragraph

Claims 3-4, 12 and 14-17 were rejected under 35 U.S.C. §112, second paragraph for failing to particularly point out and distinctly claim the subject matter of the invention.

Applicant has endeavored to amend the claims to overcome this ground of rejection. In particular, Applicant has amended claims 3 and 4 to correct antecedent issues and corrected the dependencies of claims 12 and 14-17. Therefore it is submitted that the rejection has been overcome and requested that it be withdrawn. The Examiner is thanked for the thorough review of the claims.

Rejections under 35 U.S.C. §102

Claim 1 was rejected under 35 U.S.C. 102(e) as being anticipated by Yi et al. (U.S. 6,498,787).

Yi:

Yi describes a method of sending messages in a communication system such that tracking methods such as call billing and call logging are provided relevant information in an efficient manner (Yi, col. 1 lines 60-62). Yi describes a service utilization message that includes a header, a service controller packet, and a service manager packet. The service manager packet includes a manager packet and a block sequence number field 215. The service utilization messages assist with call billing and call logging for communication systems.

At column 4, lines 49-54 Yi states:

"...A wrapping counter specifies the Block Sequence Number 215 of the message. In the preferred embodiment, this field is an unsigned field and the first packet after system start-up is given sequence number 1, then it counts up to a maximum value for a 4-octet number, after which the number rolls back to 1..."

Thus Yi discloses an embodiment wherein at startup the sequence numbers are assigned to packets in sequence. There is no mention or suggestion in Yi of a sequence number being assigned *in response to the service level associated with the packet* as recited in claim 1. Rather, the method endorsed by Yi merely uses a rolling sequence number counter.

In contrast, claim 1 recites the steps of "...identifying a ... service level associated with a packet, wherein the ... service level is selected from a set of at least two service levels available for packets in the network ... *responsive to the service level associated with the packet, assigning a sequence number to the packet*, wherein the sequence number is related to a sequence number of a previously transmitted packet of the same service level..."

Although Yi describes a Block Source field that identifies the source of a packet and a Block Command type that identifies a command type associated with the block, there is no mention or suggestion that the sequence numbers are assigned responsive to any of this information. In addition, because Yi does not disclose different sequence numbers associated with different service levels being assigned relative to other sequence numbers of the same service level.

Accordingly, for at least the reason that Yi fails to describe several elements of the claimed invention, it is requested that the rejection be withdrawn.

Claims 2, 3 and 13:

Claims 2, 3 and 13 were rejected under 35 U.S.C. §102(e) as being anticipated by Alao et al. (U.S. Patent 7,017,175).

Alao:

Alao describes a common communication language that can address all the applications running in a multitude of set top boxes (STBs) or client devices and application servers. (Abstract, Alao).

Alao describes, at column 11, lines 30-38:

"... The DATP Protocol packet comprises a fixed size header, a variable size data payload (DAML messages) and a trailer. The Header comprises the following elements: Protocol Version Number; Packet type (Login/Logout Handshake, Ping, Data, Acknowledge, etc.); Actual Transport Info (Raw, TCP/IP, UDP, etc.); Message Sequence Number (DATP message number generated by STB or SG); Service Identifier (ID of the service to receive the data). The service id is an 8 bit identifier defined in the DATP protocol. Session ID (Session ID is provided by SGW at handshake); Encryption Flags for encrypted sessions; and Payload Data Size..."

At column 12, lines 15-22 Alao describes:

"... In DATP, a sequence number is the first word of the third quadlet of a DATP packet. It indicates the DATP message sequence number. This number identifies a DATP "transaction" from a packet sent to its corresponding acknowledge. Message sequence numbers are generated by the transmitting entity and are unique only across the messages sent on one leg of a DATP connection. This means that a DATP message sent from the STB client to the SGW and a message sent from the SGW to the STB client can have the same sequence number but still correspond to two separate "transactions"...."

At column 13, lines 55-60 Alao describes:

"...DATP message with "recently" used sequence number will be rejected to avoid "multiple reception of identical fragments" type of race conditions. To implement this policy DATP hosts maintain a sliding window of recently used (sequence number, fragment id) with a timestamp on each entry in the window. Old (sequence number, fragment id) entries will be removed from the window of a DATP host if they are older than (host_max_retry+1)*host_timeout..."

Thus Alao, like Yi, describes a method which assigns sequence numbers to packets, but there is no mention or suggestion in Alao that the sequence numbers are assigned in response to a quality of service level of the packet, or that sequence numbers of received packets are only compared against packets having the same quality of service level as the received packet. Applicants have amended independent claims 2 and 13 to more clearly highlight this distinction over Alao.

For at least the reason that Alao fails to describe or suggest every limitation of the claims, it is therefore submitted that claims 2 and 13 are patentably distinct over Alao, and it is requested that the rejection be withdrawn. Dependent claim 3 serves to further limit claim 2 and is therefore allowable with claim 2.

Claims 10 and 11:

Claims 10 and 11 were rejected under 35 U.S.C. §102(e) a being anticipated by Koodli et al (U.S. 7,000,120).

Koodli:

Koodli describes a method and apparatus which permits access, by intermediate nodes between source and destination nodes, to selected information such as transport level information, normally included in a payload of a packet upon which encrypting security processing has been performed according to an encrypting security protocol. (Koodli, Abstract).

Koodli states, at column 4 lines 50 – 58:

"... The present invention allows for access of the transport level information contained in the encrypted portions of the IP packet during transmission of the IP packet by storing information related to the transport level information in the security protocol header of the IP

packet. The information selected to the transport level information could, for example, be stored in the sequence number field of the security protocol header of the IP packet..."

At column 6, lines 22-26, Koodli states:

"...According to the present invention, the sequence number field of the security protocol header can be used to convey information related to the selected information when security processing has been performed and the packet is being transmitted. Other fields of the security protocol header or the IP header could possible be used. The present invention is not limited to use of the sequence number field. The present invention provides a modified security protocol header specifically modifying the sequence number field 104-2. The sequence number field 104-2 is modified to include information related to the selected information normally contained in the encrypted payload portion of the packet when security processing has been performed. The sequence number field 104-2 of the security protocol header, particularly the ESP header illustrated in FIG. 1, is 32 bits long and can be configured such as that illustrated in FIG. 3..."

Thus Koodli essentially 'steals' sequence number bits to forward transport information, and neither describes nor suggests an apparatus for supporting an architecture that **assigns sequence numbers** with packets based on the quality of service level of the packet. Accordingly Koodli neither describes nor suggests the limitation of claim 10, which recites "...a sequence number table, *each entry associated with a quality of service level and storing a number representing the last sequence number for that quality of service level;* and means for assigning a sequence number to a packet to be transmitted based on the quality of service level of the packet..."

Accordingly, for at least this reason it is requested that the rejection of claim 10 be withdrawn. Claim 11 serves to further limit claim 10 and is therefore allowable with claim 10.

Rejections under 35 U.S.C. §103

Claim 4 was rejected under 35 U.S.C. §103 as being unpatentable over Alao in view of Nagarajan.

Nagarajan

Nagarajan describes "...An Optical Transport Network (OTN) (comprising a number of OTN nodes) uses an Internet Protocol (IP) based control plane (out-of-band signaling on a separate wavelength). Each OTN node of the IP-based control plane performs dual-feeding and dual-selecting of signaling messages on diverse signaling paths. The IP-based control plane establishes a pair of physically disjoint signaling paths between every set of neighboring OTN nodes (pre-computed and pre-established physically disjoint primary and secondary message paths in the IP-based control plane)...." (Abstract)

Nagarajan describes "...Every signaling packet receives a distinct sequence number from other signaling packets..." Thus Nagarajan, like Alao, fails to disclose assigning sequence numbers in response to a quality of service of the packet.

The Examiner states, at page 6 of the office action "it would have been obvious to one of ordinary skill in the art ... to forward the received packets for processing ... since sequence numbers are allocated using a finite number of bits so they will be repeated after a maximum finite value..."

The requirements for establishing a *prima facie* case of obviousness as set out in the MPEP Section 2143.01 require that the references when combined: (1) teach all of the claimed limitations; (2) that there be a motivation/reason to combine the references; and (3) that there be a reasonable expectation of success in realizing the claimed invention. (The third requirement is only relevant to claims covering chemical inventions, which is not the case here, and therefore this third requirement is not discussed below.)

Applicants note that even if one would be motivated to combine two references from such different technologies, one would still not teach the limitations of the claims, as the teaching of

Nagarajan fails to overcome the inadequacies of Alao as described above. Thus for at least the reason that that the combination of references fails to teach or describe several limitations of the claims it is requested that the rejection of claim 4 be withdrawn.

Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over Yi in view of Zdan (U.S. 7,020,143). Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over Yi in view of Koodli. Claims 7-9 and 14-16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Alao in view of Zdan. Claim 12 was rejected under 35 U.S.C. §103(a) as being unpatentable over Yi in view of Lahti. Claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over Alao in view of Koodli. Claim 18 was rejected under 35 U.S.C. §103(a) as being unpatentable over Alao in view of Koodli.

As has been discussed at length above, neither Alao, Koodli or Yi teach or suggest several basic concepts of the claims including a method and apparatus that associated sequence numbers with packets based on a quality of service of the packet. The additional references provided by the Examiner, including Zdan and Lahti fail to overcome the inadequacies of Alao, Koodli and Yi. For example, although Zdan teaches differentiated routing, it neither describes nor suggests associating *sequence numbers* with packets based on the quality of service of the packet. In addition, although Lahti describes the use of a mask, there is no mention or suggestion in Lahti, alone or in combination with other references, of using different masks for different quality of service levels.

Accordingly, for at least the reason that the combination of references fails to describe or suggest the elements of the claims, it is requested that the rejection of the claims be withdrawn.

Conclusion:

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Applicants' Attorney at the number listed below so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

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Date

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